

=ABSTRACT=

## Clinical Analysis of Midtrimester Amniocentesis

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**Objectives :** Amniocentesis is the most commonly used invasive method for prenatal diagnosis of genetic disorders. But this invasive study may induce preterm labor, endanger both the mother and the fetus, cause infection and abortion. This study was performed to clarify the safety and confidency of amniocentesis.

**Material and methods :** 1,500 amniocentesis cases were performed from 1987 to 1996 at Severance hospital for prenatal diagnosis of genetic disorders. Of 1,500 cases, 499 cases whose pregnancy outcomes were proven were finally analyzed. We compared incidence of complications such as spontaneous abortion, vaginal spotting, premature rupture of membranes, preterm labor or chorioamnionitis according to placental location, frequency of needle insertion and amniotic fluid color.

**Results :** 1) Indications for amniocentesis were advanced maternal age - 47.3%, positive maternal serum triple test - 13.8%, fetal chromosomal anomaly suspected in ultrasonography - 10.0%. 2) 6.6% of the amniocentesis samples had color changes due to bleeding or meconium passing. 3) 18.8% of the cases were performed at 16th gestational weeks followed by 20th, 18th and 17th weeks. 4) 2.2% had complications such as spontaneous abortion, vaginal bleeding, premature rupture of membranes, preterm labor and chorioamnionitis in 4 weeks after amniocentesis. 5) No correlation was found between the placental location, frequency of needle insertion(below 3 times) and complication rate. The spontaneous abortion rate in the group with amniotic fluid discolorization was 6.1% whose only 0.4% had spontaneous abortion to the group with clear amniotic fluid. 6) Median value of amniotic fluid alphafetoprotein( AFP) of pregnant women in midtrimester were 15,769.4ng/ml at 15 weeks, 13,160.3ng/ml at 16 weeks, 11,539.3ng/ml at 17 weeks, 9,569.8 mg/ml at 18 weeks, 8,423.4mg/ml at 19 weeks, 6,527.1ng/ml at 20 weeks, 5,979.3ng/ml at 21 weeks, 4,363.2ng/ml at 22 weeks, 3,555.2ng/ml at 23weeks, respectively. In midtrimester amniotic fluid AFP declined gradually as gestational weeks increase.

**Conclusions :** Fetal loss rate of midtrimester amniocentesis was 0.8%, proving that it outstanding in the aspects of safty and confidency. Since the fetal loss rate significantly increases in case with amniotic fluid discoloration, it is needless to mention the importance of close follow-up.

**Key Words :** amniocentesis, complication of amniocentesis, discolored amniotic fluid.

1882 가 , 가 가  
Schatz가 , 1966 Steel Bregs 15 18  
1967 99%

가

1,2

3,4

5,6

DNA

1987

1996

10

1,500

499

가

가

가

2%

free hand technique

20-30ml

22G

35

가

triple test(alpha-fetoprotein, beta- human chorionic gonadotropin, unconjugated estriol)

가

(alpha-fetoprotein:

FP)

(

$x^2$

FP 2.5 MOM

(multiples of the median)

FP ELISA(enzyme linked immunosolvent assay)

cut-off level

1. (Table 1)

가 47.3%

가

triple test가

가

13.8%

가 10.0%

Table 1. Indications of amniocentesis

Indications	Frequency	%
Maternal age $\geq 35$	236	47.3
Positive triple test*	69	13.9
Fetal chromosomal anomaly suspected by U/S	50	10.0
High maternal serum FP**	40	8.0
Previous congenital anomaly history	38	7.6
Previous chromosome anomaly history	33	6.6
Family history of chromosomal anomaly	8	1.6
Others	25	5.0
Total	499	100.0

\* triple test; alphafetoprotein, beta-human chorionic gonadotropin, unconjugated estriol

\*\* FP; alphafetoprotein

2. (Table 2)(Fig. 1.)

16 가 18.8%

(94 ) 가 , 20 , 21 , 18 , 17

FP 15,769.4ng/ml (15 ) , 13,160.3ng/ml (16 ) , 11,539.3ng/ml (17 ) , 9,569.8ng/ml (18 ) ,

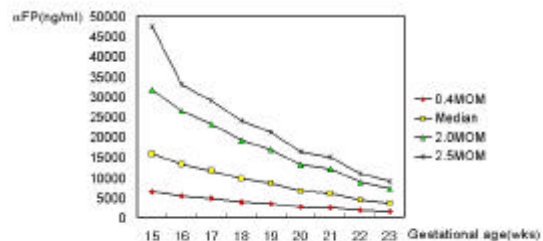


Fig. 1. Multiples of the median of midtrimester amniotic fluid FP